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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,364	07/02/2001	Terence Joseph Murphy	TI-33070	3320

23494 7590 11/04/2002

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EXAMINER

GONZALEZ, JULIO C

ART UNIT PAPER NUMBER

2834

DATE MAILED: 11/04/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/899,364

Applicant(s)

MURPHY, TERENCE JOSEPH

Examiner

Julio C. Gonzalez

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to because figures 10 and 11 have some characters that are blurry and difficult to read. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-24 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims disclose a calibration circuit coupled to the amplifier. From the specification, this calibration circuit seems to be sensing a signal, that is function like a sensing circuit (page 12, figure 10). Is the calibration circuit actually

calibrating or is the calibration circuit just sensing a signal? It may seem like if the calibration circuit functions like the sensing circuit.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, what is meant by “voltage mode”? Is the piezo actuator providing voltage to the sensing circuit? What defines the voltage mode? What is meant by the amplifier and the calibration circuit (claim 5) “characterizing” the piezo actuator?

In claim 3, what is considered a calibration mode?

In claim 19, in the statement “a capacitor is coupled to the first output”, first output of what part of the circuit? What device drives a second output to the piezo actuators? The amplifier 42, the sensing circuit? The current mirror?

In claim 14, what is considered a charge mode?

In claim 24, the ADC term needs to be spelled out.

In order to advance prosecution in the merits, the Prior Art will be applied as best understood by the examiner.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1, 6-11, 13, 14, 19, 20, 22 and 23 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 6-9, 11-13, 18, 19, 21 and 22 of copending Application No. 09/898,555. Although the conflicting claims are not identical, they are not patentably distinct from each other because both applications seem to claim the same subject matter as having a piezo actuator, a drive amplifier, a

sensing circuit, an AB type amplifier current source, an adjustable gain using a variable resistor, a control circuit and A/D converter and D/A converter.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-8, 10 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson (Patent No 5,588,592) in view of Shimada.

Wilson discloses a piezo actuator with a drive amplifier 3, a piezo actuator 5, a sensing circuit 15 coupled to the drive amplifier. Moreover, the sensing circuit comprises a resistor divider and a capacitor is coupled to one of the outputs (see figure 2) and an amplifier 15-6 forms a part of the sensing circuit.

However, Wilson does not disclose using an A/D converter.

On the other hand, Shimada discloses for the purpose of making a device that can efficiently operate with respect to fluctuation of input power source, a

calibration circuit 41 connected to a piezo device 1 and the calibration circuit 41 is connected to an A/D converter 22, which in turn is connected to a control circuit 14 (see figure 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design a sensing circuit with an actuator as disclosed by Wilson and to modify the invention by using an A/D converter for the purpose of making a device that can efficiently operate with respect to fluctuation of input power source as disclosed by Shimada.

10. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson and Shimada as applied to claim 1 above, and further in view of Kondou.

The combined piezo actuator discloses all of the elements above. However, the combined piezo actuator does not disclose explicitly using a D/A converter.

On the other hand, Kondou discloses for the purpose of reducing slope measurements thus reducing the burden upon the control processor, a DC control circuit 101 integrated into a compensation loop and a DAC 104 coupled to the drive circuit and an ADC 111 coupled to the sensing circuit (see figures 2, 4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined piezo actuator as disclosed above and to modify the invention by including a control circuit for the purpose of reducing slope measurements thus reducing the burden upon the control processor as disclosed by Kondou.

11. Claims 14, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson and Shimada as applied to claim 1 above, and further in view of Hanks et al.

The combined piezo actuator discloses all of the elements above. However, the combined piezo actuator does not disclose that the device may function in different modes.

On the other hand, Hanks et al discloses for the purpose of detecting if a piezoelectric device is functional thus reducing the number of malfunctions in a device that a piezoelectric element can be used with a device in a charge mode (figure 5) and voltage mode (figure 4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined piezo actuator as disclosed above and to modify the invention by using a piezo device in charge mode for the

purpose of detecting if a piezoelectric device is functional thus reducing the number of malfunctions in a device as disclosed by Hanks et al.

12. Claims 11-13 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson and Shimada as applied to claims 1 and 2 above, and further in view of Bishop et al.

The combined piezo actuator discloses all of the elements above. However, the combined piezo actuator does not disclose explicitly using a current mirror.

On other hand, Bishop et al discloses for the purpose of providing power very efficiently to an electronic device using a low power source, an amplifier having an output voltage V_6 , a piezo device 10, a switch 24 and an AB power amplifier source (see figure 5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined piezo actuator as disclosed above and to modify the invention by using a current mirror for the purpose of providing power very efficiently to an electronic device using a low power source as disclosed by Bishop et al.

13. Claims 9 and 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson, Shimada and Hanks et al as applied to claims 1 and 14 above, and further in view of Walker et al.

The combined piezo actuator discloses all of the elements above. However, the combined piezo actuator does not disclose using two resistor in series in feedback for an amplifier.

On the other hand, Walker et al discloses for the purpose of improving the controls of a piezoelectric devices, an amplifier 102 having two resistors in series in which one of the resistor is a variable resistor 196 (see figure 9C).

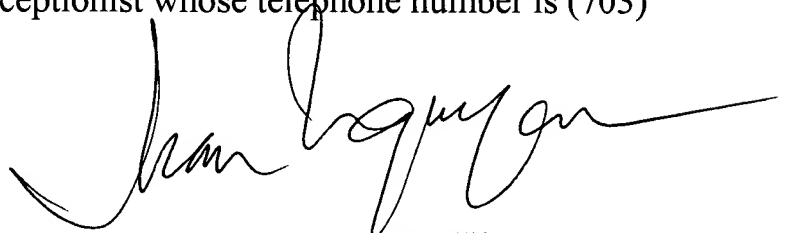
It would have been obvious to one having ordinary skill in the art at the time the invention was made to design the combined piezo actuator as disclosed above and to modify the invention by using a variable resistor in a feedback of an amplifier for the purpose of improving the controls of a piezoelectric devices as disclosed by Walker et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julio C. Gonzalez whose telephone number is (703) 305-1563. The examiner can normally be reached on M-F (8AM-5PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'Tran Nguyen', with a long horizontal flourish extending to the right.

**TRAN NGUYEN
PRIMARY EXAMINER**

Jcg

October 28, 2002